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SAYING AND DOING: A COMMENTARY ON A CONTINGENCY-SPACE ANALYSIS

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This article addresses the contingency-space analysis (Matthews, Shimoff, & Catania, 1987) of the verbal regulation of behavior. From an applied perspective, the conceptualization of the relationship between saying and doing Matthews et al. present may be more complex than is necessary. The central issue in correspondence investigations is a simple one: does correspondence between what people say and what they do occur? The focus of this paper is on the applied and clinical importance of the relationship between verbalizations and relevant behavior and the implications for future research.

DESCRIPTORS: correspondence training, verbal mediation, generalized verbal control, generalization, contingency-space analysis

Verbal regulation of behavior and the processes of its development and elaboration are difficult and complex issues in behavior analysis. Matthews, Shimoff, and Catania (1987) have described some of the complexities involved in studying the relationship between what people say and what they do that is relevant to the saying. Their paper raises a number of questions about verbal regulation and the development of a methodology to study it. Their analysis is both interesting and challenging. However, their conceptualization may be more complex than is necessary for parsimony. We will comment on some of the issues we consider important in the study of verbal regulation.

The study of saying and doing is more than just the examination of what a person says and documentation of the occurrence of the relevant behavior. Control of behavior through the performance of relevant verbalizations is a tactic of great clinical moment and is exceedingly important from a theoretical perspective. How do saying and doing relate? Sometimes saying is an excellent predictor of the relevant doing. Sometimes saying has no predictive value. Sometimes saying is predictive for some behaviors and times, yet not for others. In all of these circumstances, relevant questions include (a) how did this develop and (b) how could the current behavior relation be changed? If saying and doing are congruent, it has become fashionable to refer to the correspondence between them. If saying and doing are not congruent, or are inconsistently related, it has become fashionable to refer to an intervention, correspondence training, that successfully imparts some functional control to antecedent verbalizations. If the effects of correspondence training are such that verbalizations alone control the occurrence of a number of behaviors, it has become fashionable to refer to the development and maintenance of generalized verbal control (Baer, Williams, Osnes, & Stokes, 1984, 1985; Osnes, Guevremont, & Stokes, 1986).

Some of the complexity in the study of verbal regulation is seen in the research by Guevremont, Osnes, and Stokes (1986a). Three preschool children's play and participation in groups were examined. In addition, the performance of a homework task was recorded. Baseline performance of the behaviors in the absence of relevant verbalization was assessed and found to be low in frequency. Subsequently, it was shown that the children did

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not reliably perform the behaviors even though they verbalized that they would do so. Thus, the absence of verbal control and correspondence for those behaviors was documented. Correspondence training, during which social and activity consequences were provided for both saying and doing, was then used with some behaviors and not others. Only after correspondence training was provided for some behaviors did generalized verbal control become established. That is, the verbalization alone controlled the performance of behaviors that had never been the target of correspondence training. The children always verbalized appropriately and the targeted behaviors always increased in frequency, thereby showing the correspondence between them. The power of the controlling verbalization was quite dramatic, such that verbalizations at preschool controlled the performance of behaviors at home. The intervention procedures were complex, though, with the development of verbal control over progressively more remote times from the verbalization and across several preschool settings and several behaviors. The outcome of the study was uncomplicated, however. It showed the correspondence between saying and doing, as well as documenting the training histories and current environmental contingencies that functioned to develop successful verbal regulation.

Matthews et al. (1987) offer a contingency-space analysis to analyze correspondence research such as that described above. This analysis, taxonomy, and discussion of conditional probabilities may divert some attention from issues of actual control by verbalizations, that is, does correspondence occur? Saying and doing is truly correspondence, as is saying not and not doing. Saying and not doing is truly noncorrespondence, as is saying not and doing. On the other hand, not saying yet doing does not truly present the opportunity to examine correspondence and verbal regulation. Nor does not saying and not doing present the opportunity to examine correspondence. It is difficult, if not impossible, to document and interpret a "no-statement" relationship with the occurrence of a target behavior. The analysis of a relationship between a verbalization and a target behavior requires both the occurrence of the verbalization and observation of the verbalization for measurement. Without assessment and documentation of a verbalization, there are always multiple interpretations because it cannot be reliably determined what is not said. The central issue in correspondence investigations is simple: Does the behavior match the verbalizations? Does correspondence occur or not?

The terminology in the contingency-space analysis may provide further confusion. The term *negative correspondence* may be taken to mean, for example, that correspondence did occur, or that it did not occur in the predicted direction, or that no statement was made about the behavior and the behavior did not occur, or that there was a negative correlation between what was said and what was done. Parsimony is served by showing that correspondence occurred or that it did not occur. The relevant question is whether the content of the verbalization was related to the topography of the target behavior, not whether it was positive or negative. A description of the verbal/(non)verbal sequences would suffice without addressing positive and negative correspondence relationships.

Matthews et al. (1987) correctly acknowledge that it is important to distinguish an instance of say/do correspondence that is a member of a generalized class of correspondence from a specific say/do sequence that may not be a member of a generalized class. They say that correspondence can be identified as a response class only on the basis of observing that the probability of doing given saying is greater than the probability of doing in the absence of saying. As noted above, the absence of saying is difficult to interpret. An additional consideration is relevant to defining generalized correspondence that may not be deduced through contingency-space analyses. Correspondence implies that a reliable relationship exists between verbal and (non)verbal responses that is more than correlational. A verbalization and subsequent (non)verbal behavior, for example, may covary systematically but both be occasioned by a third variable (e.g., an experimenter instruction). Here, the relationship is purely correlational and saying would not be a necessary component in the sequence (i.e., in occasioning doing).

In defining a response class, it is assumed that

a topographically distinct set of behaviors shares a common controlling stimulus. Thus, in describing correspondence as a response class, those behaviors labeled doing (correspondence) are assumed to constitute the response class. The question that must then be asked is, what is the common controlling stimulus that occasions the various responses constituting doing? In order to define the observed say/do relationship as correspondence, the answer must be saying. It is essential to describe the verbal response as the occasioning event for the class of behaviors labeled doing when describing correspondence as a response class. Otherwise, the class of responses labeled doing would presumably share a common controlling stimulus other than the verbalization, and saying would be reduced to an unnecessary component in the say/do sequence.

The response class that is controlled by a verbal response is typically examined in relation to the specific content of the verbalization. Thus, if a withdrawn child states, "I will talk more with other kids," correspondence is noted to occur if talking to other children becomes more probable than when the verbal response (say) is not emitted. This may be examined in an experiment containing replicated manipulations of saying and not saying, where the target behavior is shown to increase systematically following saying. Similarly, when the content of the verbalization is altered (e.g., "I will share my toys") and congruent nonverbal responses occur, evidence that correspondence exists as a response class is provided.

In terms of behavior change programming, the widespread effects of a verbal response are important. If highly specific verbalizations (e.g., "I will put my toys away") occasion a narrow range of behaviors, this could be compared to the response class occasioned by broader verbal responses (e.g., "I will do what the teacher asks"). As such, different response classes may be modifiable by a prior verbalization, establishing the verbalization content as the critical antecedent stimulus.

Generalized verbal control represents a number of relationships between saying and doing. A child may demonstrate, for example, reliable say/do correspondence across several nonverbal responses but fail to correspond when other behaviors are examined. In the applied correspondence training literature, it has often been the case that a child's verbal and nonverbal responses are congruent under certain arrangements but not others (e.g., Guevremont, Osnes, & Stokes, 1986b). This point is important from both conceptual and applied viewpoints. It may be misleading to view generalized verbal control as a response class without delineating the specific parameters of that class. For example, behaviors included in a response class (doing) may be restricted to a narrow range of topographically similar activities (e.g., Williams & Stokes, 1982). Furthermore, say/do relationships observed when both verbal and nonverbal responses are emitted in a single setting or in close temporal proximity may be quite different from other arrangements, such as when verbal and nonverbal responses are emitted across temporally distant settings (e.g., Baer, Osnes, & Stokes, 1983; Guevremont et al., 1986a). The development of generalized verbal control is not a passive process but one that may involve active programming tactics (Stokes & Osnes, 1986).

Conceptual elaborations are required to account for the relationship between verbal and nonverbal responses, particularly when the verbal response is described as a discriminative stimulus. It is often observed, for example, that verbalizations emitted at one point in time are reliable predictors of some future nonverbal responses (e.g., Baer et al., 1983; Guevremont et al., 1986a). This form of remote verbal control is not well accounted for by traditional operant formulations describing the way discriminative stimuli operate. It is becoming increasingly apparent, however, that attention to only the momentary stimuli operating in the environment may not be sufficient to explain fully the controlling variables functionally tied to observed responses. While it is true that future research will have to examine this issue empirically, complex contingency histories and the role of language in occasioning temporally remote behavior should receive careful consideration. Although rule-governed behavior formulations begin to approach these issues, rules are themselves discriminative stimuli (to the extent that they have a controlling effect) and should not replace careful analyses of how these processes develop and function.

From an applied and clinical perspective, the development of a relationship between a verbalization and relevant behavior is crucial. This is why it is important to have a procedure to facilitate the client's verbalization. Without the verbalization, there is no possibility of control through the use of correspondence training. If a question is presented (e.g., "What are you going to do today?"), an answer must be forthcoming if the intervention is going to build on verbal regulation. If necessary, the verbalization must be prompted. This may not necessarily be a permanent requirement. For example, Guevremont et al. (1986a) needed to prompt on no more than three occasions in a new verbalization condition, even though the research was conducted over more than 120 days.

One could ask why a verbalization is necessary in the first place. Why not just reinforce the relevant behavior? The answer is in the usefulness of using correspondence training procedures to establish generalized verbal control over various behaviors at remote times and places. The use of antecedent verbalizations and subsequent target behavior performance (verbal or nonverbal) may be both an important method of accomplishing behavior change and a method of mediating generalization (Stokes & Baer, 1977; Stokes & Osnes, 1986). The generalization may be said to be mediated to the extent that the controlling verbalization is produced across time and settings and functions as a discriminative stimulus for the performance of the behavior. Special programming may be necessary to ensure that the verbalization itself is produced in the relevant setting.

Verbal regulation is both simple and complex. If verbal control is not present (noncorrespondence), how does one develop and maintain correspondence and generalized verbal control? If the verbalization is not produced, how does one develop and maintain it so that correspondence can be examined? What is being discussed here are antecedent stimuli (the verbalizations), the behaviors (the correspondent performance), and the consequences (usually for correspondence between saying and doing; sometimes consequences for the verbalization alone). As such, the analysis of verbal regulation in correspondence training has the theoretical complexity and sufficiency of the operant analysis of antecedents, behaviors, and consequences. The applied and theoretical stakes may seem higher when we are dealing with verbalizations and their potential influence over behavior, but it is (thankfully) only the operant again, in its undisguised beauty. Therefore, the verbalization need not be raised to a place of preeminent honor. It may be treated merely as a common yet potentially powerful behavior, subject to the same functional environmental contingencies that control other behaviors.

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